

BOTANICAL MUSEUM LEAFLETS

HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, APRIL 4, 1941

VOL. 9, No. 8

THE GENUS *PONERA*

BY

DONOVAN S. CORRELL

IN 1831, John Lindley proposed the genus *Ponera* based on *P. juncifolia*, a Mexican plant. Later, in 1842, he described a second species of the genus, *P. striata*, and stated that this concept evidently belonged to the "... rare and little known genus *Ponera*, ..." The genus is still comparatively "little known," although the widespread *P. striata* is fairly common.

In 1838, Knowles and Westcott proposed the genus *Nemaconia* based on *N. graminifolia*. This species is apparently the same as *Ponera juncifolia*. Lindley recognized the genus *Nemaconia* as congeneric with *Ponera* and in 1839 he combined them. However, he retained the specific epithet, *graminifolia*, proposed by Knowles and Westcott.

In the present paper six species are recognized as components of the genus *Ponera*: *P. glomerata*, *P. juncifolia*, *P. longipetala*, *P. macroglossa*, *P. striata* and *P. subquadrilabia*. *Ponera striata* is widespread and rather common. It occurs from Mexico to Costa Rica, and also in Venezuela and Brazil. The other five species are apparently restricted to Mexico or Guatemala, or occur in both countries. All of the species seem to grow at high elevations, usually above one thousand meters altitude. One of the six species, *P. macroglossa*, is of doubtful status. Three

others, *P. glomerata*, *P. longipetala* and *P. subquadrilabia*, are here proposed as new. These three species have in the past been erroneously included in *P. striata*.

A number of species have been described in the genus *Ponera* which subsequently have been correctly referred to the genera *Scaphyglottis* and *Neo-Urbania*. To make the present study complete, all of the concepts correctly proposed for the genus *Ponera* and also those which have at one time or another been wrongly attributed to this genus have been included with full synonymy. In this connection, it was necessary to make several new combinations and to propose several reductions.

It was impossible to arrive at satisfactory conclusions concerning several of the concepts which have been proposed; namely *P. pellita*, *P. pleurostachys* and *P. inconspicua*. Consequently, these have been included at the end of the paper as doubtful species.

***Ponera* Lindley** Gen. & Sp. Orch. Pl. (1831) 113; in Bot. Reg. 28 (1842) Misc. p. 19.

Nemaconia Knowles & Westcott Flor. Cab. 2 (1838) 127.

Epiphytic or rock-inhabiting plants with creeping rhizomes. Stems leafy on the upper part, slender or robust, terete, reed-like, never pseudobulbous, simple or sometimes branching. Leaves six or more, alternate, distichous, linear or narrowly lanceolate. Inflorescence or inflorescences composed of short or subsessile racemes or a solitary flower, sometimes glomerate or fasciculate, terminal or opposite the leaf axils at the nodes of the defoliated stem. Sepals about equal; dorsal sepal free; lateral sepals with the broad base adnate to the foot of the column to form a mentum under the lip. Petals longer than or about equal to the dorsal sepal, somewhat narrower, more or less decurrent on the column. Lip subarticulated

to the apex of the column-foot; lamina arcuate-recurved and spreading, nearly entire to deeply emarginate at the apex, simple or three-lobed. Column short, stout, wingless, produced into a foot at the base; anther terminal, operculate, incumbent; pollinia four, equal, waxy, laterally compressed. Capsule ellipsoidal.

The generic name is taken from the Greek, meaning "wretched, vile," in allusion to the starveling appearance of the type species—*Ponera juncifolia*.

KEY TO THE SPECIES

Plants small, grass-like; stem less than 2 mm. in diameter; leaves linear, less than 3 mm. broad; inflorescence a terminal 2-3-flowered raceme; lip distinctly 3-lobed

2. *P. juncifolia*

Plants rather large, reed-like; stem more than 2 mm. in diameter; leaves narrowly lanceolate, tapering to the apex, more than 4 mm. broad; inflorescences composed of solitary flowers or few-flowered subsessile racemes or glomerules, both terminal and lateral; lip simple, not distinctly 3-lobed

Inflorescences composed of dense, stalked glomerules; flowers nearly concealed by the densely imbricated bracts

1. *P. glomerata*

Inflorescences composed of a solitary flower or several clustered flowers; flowers completely exposed, not concealed by the bracts

Lip rhombic-ligulate, tapering to a narrow retuse apex

4. *P. macroglossa*

Lip cuneate or subquadrate, not tapering to a narrow apex

Petals much longer than the dorsal sepal; sepals and ovary densely verrucose; leaf-sheaths smooth; plants normally branching

3. *P. longipetala*

Petals about as long as the dorsal sepal; sepals and ovary smooth; leaf-sheaths densely verrucose; plants normally unbranched

Inflorescences subtended by several large clasping, imbricated bracts; flowers essentially sessile, clustered; lamina of the lip typically oblong-cuneate, thin

5. *P. striata*

Inflorescences subtended by inconspicuous bracts; flowers pendunculate; lamina of the lip subquadrate, fleshy-thickened

6. *P. subquadrilabia*

1. ***Ponera glomerata*** *Correll sp. nov.*

Herba caespitosa. Caulis robustus, arundinaceus, teres, supra foliosus, foliorum vaginis arcte adpressis omnino celatus. Folia disticha, lineari-lanceolata, membranacea vel subcoriacea, vaginis articulata; vaginae laeves, non verruculosae, cicatrix prominens, persistens. Inflorescentiae glomeratae, terminales vel in caulis parte inferiore defoliata oppositifoliae; glomeruli breviter pedunculati, in floribus pluribus sessilibus et bracteis numerosis dense imbricantibus consistentes; bractee membranaceae, in fibras numerosas solutae. Flores inflorescentiae bracteis fere obtecti, perianthii segmenta carnosae. Sepalum dorsale ovato-ellipticum, concavum, obtusum. Sepala lateralibus oblique triangularia, obtusa, concava, columnae pedi adnata et mentum conspicuum formantia. Petala oblongo-elliptica, apice late rotundata. Labellum columnae pedi leviter articulatum, in positu naturali late obovato-flabellatum, expansum obcordato-subquadratum, emarginatum cum lobulis rotundatis. Columna brevis, apice trilobulata, basi in pedem latum elongatum producta.

Plant caespitose, stout, coarse, up to 1.5 m. tall, with numerous coarse fibrous roots which are densely tomentose. Stem robust, reed-like, terete, 6–8 mm. in diameter, leafy above, concealed by closely appressed leaf-sheaths, vernicose when exposed. Leaves distichous, articulated to the leaf-sheaths, narrowly lanceolate, obliquely retuse at the apex, firmly membranaceous or subcoriaceous, grass-green above, paler beneath, 8–25 cm. long, 1–1.8 cm. wide; leaf-sheaths smooth, not verrucose; leaf scar prominent, persistent, about 1.5 mm. wide. Inflorescences composed of glomerules, terminal or opposite the leaf axils at the nodes along the defoliated lower part of the stem; glomerules short-stalked, up to 2.5 cm. long and 2 cm. in diameter, consisting of several sessile flowers

and numerous densely imbricated bracts; bracts of the glomerules fibrous-membranaceous, disintegrating into numerous fibres. Flowers small, with short stout ovaries which are nearly concealed by the bracts of the inflorescence, the floral segments very fleshy-thickened and connivent. Dorsal sepal broadly ovate-elliptic, obtuse, concave, about 8 mm. long and 5.5 mm. wide below the middle. Lateral sepals obliquely triangular, obtuse, concave, about 8 mm. long and 7 mm. wide across the base, adnate to the column-foot to form a prominent mentum. Petals oblong-elliptic, broadly rounded at the apex, slightly oblique, about 9 mm. long and 4.5 mm. wide. Lip densely covered with minute papillae, subarticulated to the column-foot, strongly arcuate-recurved in natural position with the lower half of the margins upturned to form a channel, broadly obovate-flabellate in natural position, deeply emarginate with the lobules rounded, obcordate-subquadrate when spread out, about 9 mm. long and 7 mm. wide near the apex. Column short, stout, less than 3.5 mm. long, 3-lobulate at the apex, with the middle lobule incurved over the anther, produced at the base into a broad elongated foot; column-foot as long as or longer than the column, strongly sulcate, about 3.5 mm. long, forming with the column a deep saddle. Capsule suborbicular-ellipsoidal, about 1 cm. long.

The large glomerules at once distinguish this species from *P. striata*, its nearest ally. The smooth, not verrucose, leaf-sheaths also distinguish it from that species. Although the lip is not unlike that of some forms of *P. striata*, the floral segments are much fleshy-thickened rather than thin. The leaves are usually larger than those of *P. striata*.

Ponera glomerata has been found only in Mexico and Guatemala.

MEXICO: Chiapas, Hunkanal auf Eichbäumen, March 30, 1896,

Caec. et Ed. Seler 2604 (Herb. Ames); Chiapas, E. of Comitán, on old oak trees above Sta. María de los Arcos, in forest, 1500 meters alt., April 1, 1936, *Otto Nagel 5654* (TYPE in Herb. Ames No. 52257).

GUATEMALA: Chimaltenango, pine forest, Cerro de Tecpám, region of Santa Elena, 2400-2700 meters alt., December 26, 1938, *P. C. Standley 60925* (Herb. Field Museum); Quezaltenango, on trees along forested ravine, leaves stiff, firmly subcoriaceous, grass-green above, paler beneath, Volcán Santa María, between Santa María de Jesús, Los Mojadas, and summit of volcano, 1500-3000 meters alt., January 12, 1940, *J. A. Steyermark 33962* (Herb. Field Museum); Sacatepequez, origin near San Juan, about 1700 meters alt., 1933, *Margaret W. Lewis 85* (Herb. Ames).

2. *Ponera juncifolia* Lindley Gen. & Sp. Orch. Pl. (1831) 114.

Nemaconia graminifolia Knowles & Westcott Flor. Cab. 2 (1838) 127.

Ponera graminifolia Lindley in Bot. Reg. 25 (1839) Misc. p. 17.

This species is outwardly distinguishable from all other species of *Ponera* by its weak, slender stem, its narrowly linear, grass-like leaves and its distinctly 3-lobed lip.

Lindley, in comparing *P. graminifolia* with *P. juncifolia*, wrote: "Having received flowers of it from Mr. Barker, I find that it agrees in every essential particular with the structure of *P. juncifolia*; so nearly indeed that, if the leaves of the two were not very different, some doubt might be entertained of their being specifically different."

Lindley evidently did not see the leaves of *P. graminifolia* since he said that only the flowers were sent to him by Barker. He probably relied on the description of the species for his reference to the leaves. We have not found this supposed leaf difference to be of specific value. The leaves of *P. juncifolia* were described as subulate, canaliculate and secund, whereas those of *P. graminifolia* were described as linear. The leaf-sheaths of both have been described by Reichenbach, Lindley and others as

being dusky papillose, minutely verrucose or "arpophyl-
laceo-punctulatae." An examination of a photograph of
P. juncifolia from the Lindley Herbarium shows the leaves
to be narrowly linear as described for *P. graminifolia*.

SPECIMENS EXAMINED:

MEXICO: Guerrero, near Santa Rosa, S. W. of Chilpancingo, on tree
trunks, fls. pale salmon color, lip callus orange, 2200 meters alt., Octo-
ber 12, 1933, *Juan G. 1712* (Herb. Ames); District of Temascaltepec,
near Cajones, 2480 meters alt., November 11, 1932, *G. B. Hinton 2346*
(Herb. Ames); District of Temascaltepec, Cajones, 2480 meters alt.,
November 7, 1932, *G. B. Hinton 2369* (Determined by the staff at
Kew) (Herb. Ames); Vera Cruz, region of Naolinco, toward Coaco-
huacintla, on tree trunk, fls. pale pinkish yellow, lip orange, 1800
meters alt., November 12, 1935, *Otto Nagel & Juan G. 4721* (Herb.
Ames).

3. *Ponera longipetala* Correll sp. nov.

Herba multo ramosa. Caulis primarius et ei ramorum
graciles, arundinacei, subteretes, supra foliosi, vaginis
arcte adpressis obtecti. Folia disticha, lineari-lanceolata,
membranacea, vaginis articulata; foliorum vaginae laeves,
non verrucosae, vernicosae, leviter complanatae. In-
florescentia in ramis terminalis, sessilis, racemosa, dense
pauciflora, bracteis pluribus imbricatis ornata. Flores
sessiles, carnosissimi, cum ovariiis brevibus dense verrucosis.
Sepala carnosissima, extus dense verrucosa, apice obtuso
multo incrassata. Sepalum dorsale oblongo-subquadra-
tum. Sepala lateralia oblique triangulari-ovata, columnae
pedi adnata et mentum conspicuum formantia. Petala
sepalis multo longiora, oblongo-elliptica, apice late ro-
tundata vel subtruncata. Labellum columnae pedi leviter
articulatum, expansum oblongo-subquadratum, emar-
ginatum. Columna crassa, basi in pedem latum elonga-
tum producta.

Plant much branched, the branches up to 6 dm. long,
with large coarse roots up to 1 cm. in diameter. Main
stem and stems of the branches slender, reed-like, nearly

terete, 2-3 mm. in diameter, leafy above, concealed by closely appressed leaf-sheaths, somewhat vernicose when exposed. Leaves distichous, articulated to the leaf-sheath, narrowly lanceolate, obliquely bidentate at the apex, firmly membranaceous, 5-15 cm. long, 4-7 mm. wide; leaf-sheaths smooth, not verruculose, tan, vernicose, somewhat compressed. Inflorescence terminal on the branches, composed of a sessile compact few-flowered raceme, subtended by several dark brown membranaceous imbricated bracts. Flowers sessile, fleshy-thickened, with short densely verrucose ovaries. Sepals very fleshy-thickened, densely and coarsely verrucose on the outer surface. Dorsal sepal oblong-subquadrate, obtuse and much thickened at the apex, 7.5 mm. long, 5 mm. wide. Lateral sepals obliquely triangular-ovate, obtuse and much thickened at the apex, 8-9 mm. long, 6 mm. wide across the broad base, adnate to the elongated column-foot to form a prominent mentum. Petals oblong-elliptic, narrowed below the middle, subtruncate to broadly rounded at the apex, 7-nerved, 10 mm. long, 4.5 mm. wide. Lip subarticulated to the column-foot, strongly arcuate-recurved in natural position, oblong-subquadrate when spread out, broadest at the base of the lamina, emarginate, 1-1.1 cm. long including the short narrow claw, 7.2 mm. wide across the basal portion. Column stout, 4 mm. long, produced at the base into a broad elongated foot; column-foot 3.5 mm. long.

Ponera longipetala differs from *P. subquadrilabia*, its nearest ally, in the larger, sessile (not pedunculate) flowers, the longer petals which exceed the sepals, and in the densely verrucose sepals and ovaries. The plants of *P. subquadrilabia* are unbranched, whereas *P. longipetala* is much branched. The two species also differ in their leaf-sheaths. The leaf-sheaths of *P. longipetala* are smooth while those of *P. subquadrilabia* are densely verruculose.

Ponera longipetala is the only *Ponera* which is normally branched. We have seen a collection of *P. striata* (Lundell 1102 from Mexico in Herb. Ames Nos. 4369, 38055) with a branched stem which was due to an injury.

MEXICO: Guerrero, pine-oak forest near Jaleaca, epiphyte, 2000 meters alt., April 9, 1936, Otto Nagel & Juan G. 3252 (TYPE in Herb. Ames No. 52256).

4. *Ponera macroglossa* Reichenbach filius in Bot. Zeit. 10 (1852) 639.

Scaphyglottis macroglossa Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 457.

Reichenbach stated that this species is allied to and resembles in habit *P. striata*. The flowers, which were said to be borne solitary or in fascicles along the stem, have a lip which was described as: "... rhombico ligulato apice bilobulo." Reichenbach's illustration (Xen. Orch. 1 (1854) t. 19, fig. 12) shows a lip which approaches being rhombic-lanceolate with a tapering apical portion. In keying out the species of *Ponera* in Walp. Ann. 6 (1862) 450-454, Reichenbach placed *P. macroglossa* in the "Ebulbes distichifoliae" section. However, in spite of this, Schlechter later transferred this species to the genus *Scaphyglottis*, which, if this transfer were correct, would place the species in Reichenbach's "Pseudobulbosae" section.

It is reasonable to suppose that if it were possible to examine the type of *P. macroglossa*, it might prove to be a variety of *P. striata*. However, for the time being, it seems best to recognize *P. macroglossa* with some doubt as to its true status. It has been collected only in Guatemala.

5. *Ponera striata* Lindley in Bot. Reg. 28 (1842) Misc. p. 18-19.

?*Ponera punctulata* Reichenbach filius in Walp. Ann. 6 (1862) 451.

Ponera australis Cogniaux in Martius Fl. Bras. 3, pt. 5 (1898) 9, t. 5.

Ponera geraensis Rodrigues in Contr. Jard. Bot. Rio de Janeiro 4 (1907) 103, t. 23, fig. C.

Sobralia polyphylla Kränzlin in Vidensk. Medd. fra Dansk. Naturh. Foren. 71 (1920) 173.

This species is easily distinguished by the large bracts which subtend the sessile inflorescences, both terminal and lateral. The flowers, which are variable in size, are rather thin in texture and are usually marked with bright purple, light reddish brown or violet stripes. The lip is provided with a short claw and is typically cuneate-oblong and deeply emarginate. However, the lip may vary somewhat in shape, often being pandurate-cuneate with the lateral margins sigmoid, or may even appear to be shallowly 3-lobed when the upcurved margins of the basal portion are spread out.

Lindley, in describing *P. striata*, wrote: "When old the stems become leafless, are closely covered with rugged sheaths, and produce here and there from their axils clusters of two or three sessile flowers, . . . both sepals and petals being striped with bright reddish-brown. . . . The labellum is wedge-shaped, slightly downy, curved downwards in the middle, and two-lobed at the apex."

Ponera punctulata would seem to be referable to this concept. Reichenbach said that the flowers were about equal to those of *P. striata* but were greenish white with many dark violet spots instead of being striped with reddish brown. Reichenbach further stated that the lip of *P. punctulata* was cuneate, dilated and retuse at the apex, and obscurely 3-lobed in front of the base. As pointed out above, it is possible to produce a 3-lobed effect with the lip of some specimens of *P. striata* if the basal margins are spread out.

Cogniaux's plate showing *P. australis* is what we con-

sider to be an excellent illustration of typical *P. striata*. He described and illustrated the lip of the flowers of *P. australis* as being ligulate-spatulate, deeply emarginate at the apex, and slightly constricted about the middle. The habit of the plant as shown in the illustration is more or less typical of all the species of *Ponera*, except *P. juncifolia*, and shows along the naked stem lateral clusters of sessile flowers subtended by large bracts.

Rodrigues wrote as follows concerning *P. geraensis*: "Les feuilles et les fleurs sont plus petites que le *P. australis*, et sont blanches, ayant les divisions lignées et veinées de violet." As is evident from his illustration the flowers of *P. geraensis* resemble rather closely those of *P. striata*. The lip, as he stated, is oblong, narrowed at the base and deeply emarginate at the apex. He also stated that the lip was about 3 mm. wide at the base and about 6 mm. wide at the apex, measurements which would seem to indicate a cuneate shape. Except for the statement that the flowers were fleshy and pedicellate, the description he gives of the plant proves that it is vegetatively similar to *P. striata*.

Rodrigues' measurements are palpably erroneous in part. For example, he gives the leaf measurements as 12-13 mm. long and 8 mm. wide and the lip measurements as 11 mm. long and 6 mm. wide at the apex and 3 mm. wide at the base. According to these measurements, the lip of the flowers and the leaves of his plant are about equal in length. His illustration, however, disproves this. The leaf illustrated is as long as those of typical *P. striata*.

Kränzlin described *Sobralia polyphylla* from very poor and inadequate material, with the result that he placed the plant in an entirely different subtribe, the Sobralieae, instead of in the Ponereae where it properly belongs. He wrote: "Labellum e basi cuneata dilatatum, oblon-

gum, basi lineis subparallelis percursum. . . .” It would seem from this description that the lip is comparable to that of *P. striata*. Williams (in Bot. Mus. Leaf. Harvard Univ. 7 (1939) 184), who has seen the type specimen of *Sobralia polyphylla*, says that it is unquestionably *Ponera striata*.

This species is widespread and rather common in Mexico, Guatemala, British Honduras, Honduras, Salvador, Costa Rica, Venezuela and Brazil. It has been found from 790 to 1300 meters altitude.

SPECIMENS EXAMINED:

MEXICO: Vallée de Cordova, January 10, 1866, *M. Bourgeau 1766* (in part) (Herb. Ames); Yucatan, Tuxtepec, Campeche, December 20, 1931, *C. L. Lundell 1102* (Herb. Ames, Gray Herb., Herb. N. Y. Bot. Gard., U. S. Nat. Herb.).

GUATEMALA: Amatitlán, February 11, 1905, *W. A. Kellerman 4556* (U. S. Nat. Herb.); Guatemala, near Guatemala City, purchased from an Indian, flowers small, greenish yellow with red nerves, February 12, 1933, *Margaret W. Lewis 71* (Herb. Ames); Guatemala, Laguna del Naranjo, February 1923, 1490 m. alt., *G. Salas 201* (U. S. Nat. Herb.); Petén, epiphyte, Vaxactun, March 22, 1931, *H. H. Bartlett 12277* (Herb. Ames); San Marcos, pendent epiphyte, stems obliquely descending or pendent, leaves firmly chartaceous, shining and grass-green above, pale green beneath, Finca El Porvenir, along Río Cabus above Potrero Matasán, Volcán Tajumulco, 1000-1300 meters alt., March 2, 1940, *J. A. Steyermark 37607* (Herb. Field Museum); San Martín-Jilotepeque, greenish flowers, two lateral petals with purple stripes, January 29, 1939, *J. R. Johnston 1416* (Herb. Ames); Zacapa, epiphyte on tree, rich forested slopes in deep ravine along Río Lima, Sierra de las Minas, between Río Hondo and summit of mountain at Finca Alejandria, 1500-1700 meters alt., October 11, 1939, *J. A. Steyermark 29609* (Herb. Field Museum).

BRITISH HONDURAS: El Cayo District, bank of Belize River, epiphyte, February 13, 1938, *P. H. Gentle 2233* (Herb. Ames); Maskall Pine Ridge, January 1934, *P. H. Gentle 1097* (Herb. Ames, Gray Herb., N. Y. Bot. Gard.); Stann Creek Valley, Mountain Cow Ridge, in high ridge on hill top, on tree, March 2, 1940, *P. H. Gentle 3243* (Herb. Ames).

SALVADOR: Dept. de La Libertad, on tree trunk, vicinity of Santa Tecla, 790-950 meters alt., April 10, 1922, *P. C. Standley 23007* (Herb. Ames, Herb. N. Y. Bot. Gard., U. S. Nat. Herb.); Dept. de La

Libertad, Santa Tecla, March 1923, *S. Calderón 1538* (Herb. Gray, U.S. Nat. Herb.).

HONDURAS: Dept. of Comayagua, Siguatepeque, epiphyte, dense tropical forest, sepals light green with lavender stripes running vertically, petals and lip white with very few lavender stripes, column white, March 29, 1933, *J.B. Edwards 394* (Herb. Ames).

COSTA RICA: Peralta (in cultivation at Las Cónccavas), flowers hyaline, streaked with pink-purple, November 9, 1924, *C. H. Lankester 955* (Herb. Ames); Peralta, on upper branches of *Anacardium*, stems more than 1 meter tall seen, *C. H. Lankester 916* (Herb. Ames).

VENEZUELA: prope coloniam *Tovar*, 1854-5, *A. Fendler 1456* (Herb. Gray).

BRAZIL: Serra Negra, Sao Paulo, cult. particular, January 2, 1928, *F. C. Hoehne 22261* (Herb. N. Y. Bot. Gard.); *Sellow 5342* [Det. as *P. australis* by Cogniaux] (Herb. Ames); Minas Geraes, 1861, *A. F. Regnell III 1193* (U.S. Nat. Herb.).

6. *Ponera subquadrilabia* Correll sp. nov.

Herba caespitosa. Caulis gracilis, arundinaceus, teres, supra foliosus, foliorum vaginis arcte adpressis obtectus. Folia disticha, lineari-lanceolata, membranacea, vaginis articulata; foliorum vaginae dense verruculosae. Inflorescentia vel panícula brevis pauciflora terminalis vel flores singuli aut bini in caulis parte inferiore defoliata oppositifolii; flores bracteis pluribus inconspicuis membranaceis infra ornati; bractee amplexicaules, verruculosae. Sepala carnosa, concava, obtusa vel acuta; sepalum dorsale ovali-ellipticum vel suborbiculari-ovale; sepala lateralía oblique triangularia vel suborbiculari-ovata, columnae pedi adnata et mentum conspicuum formantia. Petala oblongo-elliptica vel ovalia, apice rotundata. Labellum columnae pedi leviter articulatum, pulvillo carnoso ante unguem brevem donatum; lamina subquadrato-ovata, emarginata, basi plusminusve truncata. Columna crassa, apice obtuse tridentata, basi in pedem latum elongatum producta.

Plant caespitose, 1.5-8.5 dm. tall, from a short rhizome with large coarse roots. Stem slender, reed-like,

terete, 2–3 mm. in diameter, leafy above, concealed by closely appressed leaf-sheaths, vernicose when exposed. Leaves distichous, articulated to the leaf-sheaths, narrowly lanceolate, obliquely bidentate at the apex, firmly membranaceous, occasionally verrucose, 6–14 cm. long, 5–10 mm. wide; leaf-sheaths densely verruculose, when deciduous leaving a reddish brown ring at the point of attachment. Inflorescence or inflorescences a short terminal crowded several-flowered paniculate raceme or 1–2 flowers arising opposite the leaf axils at the nodes along the defoliated lower part of the stem; raceme up to 3 cm. long, subtended by several inconspicuous membranaceous imbricated bracts, the bracts and peduncle verruculose; individual peduncles of the flowers 4–5 mm. long. Floral bracts amplexicaul, ovate-cucullate, acute, verruculose, 2–3 mm. long. Flowers small, fleshy, with short stout ovaries. Sepals fleshy, smooth or somewhat corrugated and apparently vernicose on the outer surface. Dorsal sepal oval-elliptic to suborbicular-oval, subobtuse to acute, concave, 6–6.5 mm. long, 4–5 mm. wide. Lateral sepals obliquely triangular to suborbicular-ovate, obtuse to acute, concave below, recurved at the apex, 6–7 mm. long, 5.5–7 mm. wide across the broad base, adnate to the column-foot to form a prominent mentum. Petals oblong-elliptic to broadly oval, rounded and usually somewhat apiculate at the apex, slightly oblique, 3–5-nerved, minutely ciliolate-erose on the apical margin or nearly entire, 5.5–6.2 mm. long, 3–3.8 mm. wide, noticeably decurrent on the column. Lip subarticulated to the column-foot, strongly arcuate-recurved in natural position, with a distinct slender claw, minutely ciliolate on the under surface, provided with a fleshy cushion just in front of the claw, 7–8 mm. long including the claw; lamina 6–8 mm. wide across the base, subquadrate-ovate, emarginate, entire or crenulate above the middle, the veins

often fleshy-thickened, truncate or nearly so at the base. Column short, stout, obtusely 3-toothed at the apex, 4 mm. long, produced at the base into a broad elongated foot; column-foot 4-4.5 mm. long.

This species is best distinguished from *P. striata*, with which it has been confused, by the distinctly pedunculate fleshy-thickened flowers which are subtended by small inconspicuous bracts instead of large bracts as in *P. striata*. Furthermore, the flowers are marked with dull purple, whereas those of *P. striata* are marked with bright purple or lavender. The lip which is provided with a slender claw has a subquadrate lamina. The lamina is truncate or subtruncate at the base rather than cuneate-oblong as in *P. striata*.

MEXICO: Chiapas, forests above Santa María de los Arcos, E. of Comitán, on oak trees, fls. tawny with violet stripes and designs, about 1500 meters alt., October 24, 1938, *Otto Nagel 4469* (Herb. Ames); Chiapas, oak-pine-Liquidambar forests on shore of Lake Montecello, epiphyte in humid forest, fls. yellow-green with heavy dull purplish marks and veins, 1350 meters alt., March 1935, *Otto Nagel 4482* (Herb. Ames); Chiapas, mountain forests above Hacienda Santa María de los Arcos, on old oak trees, E. of Comitán, fls. dull yellowish with dull purplish streaks and veins, 1450 meters alt., November 20, 1937, *Otto Nagel 5655* (Herb. Ames); Pueblo, near Necaxa, fls. yellow-green with dull purplish veins, about 1000 meters alt., September 21, 1933, *Erik Hultén 1467* (Herb. Ames); Vera Cruz, on old walls and cliffs, near Orizaba, January 23, 1895, *C. G. Pringle 5919* (TYPE in Herb. Ames No. 3491); Vera Cruz, near Jalapa, 1400 meters alt., September 29, 1933, *Erik Östlund 1466* (Herb. Ames); Vera Cruz, Mt. San Cristobal, S. W. of Orizaba, very humid mixed forest, on trees, fls. yellow-green with dull purplish veins and marks, 1500 meters alt., October 12, 1933, *Otto Nagel 2522* (Herb. Ames); Vera Cruz, Zacuapán, March 1913, *C.A. Purpus 6454* (Herb. Ames); Vera Cruz, Zacuapán, January 1913, *C. A. Purpus 6623* (Herb. Gray, U. S. Nat. Herb.); Vera Cruz, on trees, Zacuapán, November, *C.A. Purpus 10502* (U.S. Nat. Herb.); Vallée de Cordova, January 10, 1866, *M. Bourgeau 1766* (in part) (Herb. Ames, U.S. Nat. Herb.).

EXCLUDED SPECIES

In so far as we have been able to ascertain, the following citations include all of the concepts originally proposed for the genus *Ponera*, or wrongly attributed to that genus, which have subsequently been transferred to other genera. It has been impossible to study critically all of the species cited. However, it is very probable that when the North and South American species of *Scaphyglottis* are considered as a whole and are thoroughly investigated, a number of the present concepts will prove to be untenable.

Ponera Reichenbach filius in Walpers Ann. 6 (1862) 452, sect. *B* = ***Scaphyglottis***.

Neo-Urbania adendrobium (*Reichb.f.*) *Fawcett & Rendle* in Journ. Bot. 47 (1909) 125.

Ponera adendrobium Reichenbach filius in Flora 48 (1865) 278.

Pleuranthium adendrobium Bentham & Hooker filius ex Jackson Index Kew. 3 (1895) 563.

Camaridium parviflorum Fawcett & Rendle in Urban Symb. Antill. 1 (1900) 472.

Cuba and Jamaica.

Scaphyglottis affinis *Poeppig & Endlicher* Nov. Gen. ac Sp. Pl. 1 (1836) 59, t. 99A.

Ponera conferta Reichenbach filius in Bonpl. 2 (1854) 22 (pro parte).

Brazil.

Scaphyglottis amethystina (*Reichb.f.*) *Schlechter* in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 456.

Ponera amethystina Reichenbach filius in Saunders Refug. Bot. 2 (1869) t. 93.

Guatemala, Costa Rica and Honduras.

Scaphyglottis Behrii (*Reichb.f.*) *Bentham & Hooker filius ex Hemsley* in Godman & Salvin Biol. Centr.-Am. Bot. 3 (1883) 219.

Ponera Behrii Reichenbach filius in Bonpl. 3 (1855) 220.

Ponera albida Reichenbach filius Beitr. Orch. Centr.-Am. (1866) 103.

Scaphyglottis guatemalensis Schlechter in Fedde Repert. 2 (1906) 133.

Scaphyglottis pauciflora Schlechter in Fedde Repert. 3 (1906) 47.

Scaphyglottis albida Schlechter in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 456.

Scaphyglottis Sanctae Martae Schlechter in Fedde Repert. Beih. 7 (1920) 122.

Scaphyglottis Bradeorum Schlechter in Fedde Repert. Beih. 19 (1923) 113.

Guatemala, British Honduras, Costa Rica and Panama.

Scaphyglottis bilineata (*Reichb.f.*) *Schlechter* in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 456.

Ponera bilineata Reichenbach filius Beitr. Orch. Centr.-Am. (1866) 88.

Costa Rica.

Scaphyglottis caricalensis (*Kränzl.*) *Correll* comb. nov.

Ponera caricalensis Kränzlin in Notizbl. Bot. Gart. Berl. 7 (1920) 425.

The column of *Ponera caricalensis* was described as being slender and lobulate-winged on each side above, characters attributed to the genus *Scaphyglottis* but not to the genus *Ponera*. The column of the species of *Ponera* is short, thick and wingless. Kränzlin also stated that the middle of the stem of his plant was lightly fusiform, a character which is lacking in the genus *Ponera*. The

flowers are described as pale yellow, suffused with brown.
This species was collected in Colombia.

Scaphyglottis conferta *Poeppig & Endlicher* Nov.
Gen. ac Sp. Pl. 1 (1836) 59, t. 100.

Ponera conferta Reichenbach filius in Bonpl. 2 (1854)
22 (ex parte).

Brazil.

Scaphyglottis esuriens (*Reichb.f.*) *Schlechter* in
Fedde Repert. Beih. 7 (1920) 242.

Ponera esuriens Reichenbach filius in Allg. Gartenz.
24 (1856) 98.

“Colombia.”

Scaphyglottis Felskyi (*Reichb.f.*) *Schlechter* in
Fedde Repert. Beih. 6 (1919) 66.

Ponera Felskyi Reichenbach filius in Linnaea 41 (1876)
85.

Venezuela.

Scaphyglottis graminifolia *Poeppig & Endlicher*
Nov. Gen. ac Sp. Pl. 1 (1836) 59, t. 99B.

Ponera conferta Reichenbach filius in Bonpl. 2 (1854)
22 (pro parte).

Peru and Brazil.

Scaphyglottis Kienastii (*Reichb.f.*) *Hemsley* in
Godman & Salvin Biol. Centr.-Am. Bot. 3 (1883) 219.

Ponera Kienastii Reichenbach filius in Gard. Chron.
n.s., 7 (1877) 810.

Mexico.

Scaphyglottis leucantha *Reichenbach filius* in Lin-
naea 22 (1849) 856.

Ponera leucantha Reichenbach filius in Bonpl. 2 (1854)
22.

Venezuela.

Scaphyglottis livida (*Lindl.*) *Schlechter* in Beih. Bot. Centralbl. 36, Abt. 2 (1918) 457.

Isochilus lividum Lindley in Bot. Reg. 25 (1839) Misc. p. 36.

Isochilus dubius A. Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3 (1845) 23.

Ponera dubia Reichenbach filius in Bonpl. 4 (1856) 327.

Scaphyglottis dubia Bentham & Hooker filius ex Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3 (1883) 219.

Pachystele dubia Schlechter in Fedde Repert. Beih. 19 (1923) 114.

Mexico, Guatemala and Honduras.

Scaphyglottis mesocopis (*Endr. & Reichb.f.*) *Bentham & Hooker filius ex Hemsley* in Godman & Salvin Biol. Centr.-Am. Bot. 3 (1883) 220.

Ponera mesocopis Endres & Reichenbach filius in Xen. Orch. 2 (1874) 222, t. 200.

Scaphyglottis Powellii Schlechter in Fedde Repert. Beih. 17 (1922) 28.

An examination and comparison of the plate of *Ponera mesocopis* with a drawing and analysis of *Scaphyglottis Powellii*, made under the supervision of Schlechter, reveal no characters whereby they may be kept separate.

Costa Rica and Panama.

Scaphyglottis modesta (*Reichb.f.*) *Schlechter* in Fedde Repert. 23 (1926) 46.

Tetragamestus modestus Reichenbach filius in Bonpl. 2 (1854) 21.

Ponera modesta Reichenbach filius in Linnaea 41 (1876) 85.

The West Indies, Venezuela, British Guiana and Brazil.

Scaphyglottis prolifera (*R.Br.*) *Cogniaux* in
in Martius Fl. Bras. 3, pt. 5 (1898) 15.

Isochilus prolifer R. Brown in Aiton Hort. Kew. ed.
2, 5 (1813) 209.

Isochilus proliferum Lindley Gen. & Sp. Orch. Pl.
(1831) 113 (excl. syn. Sw.).

Ponera prolifera Reichenbach filius in Bonpl. 2 (1854)
22.

Scaphyglottis cuneata Schlechter in Beih. Bot. Cen-
tralbl. 36, Abt. 2 (1918) 398.

Tetragamestus gracilis Schlechter in Beih. Bot. Cen-
tralbl. 36, Abt. 2 (1918) 400.

Ponera mapiriensis Kränzlin in Fedde Repert. 25
(1928) 22.

An examination of drawings and analyses made under
the supervision of Schlechter of the types of *Scaphyglottis*
cuneata and *Tetragamestus gracilis*, and a comparison
of descriptions show that there is no essential difference
between these two concepts and that of *S. prolifera*.

An examination of sheets of the type collection in
the Herbarium of the New York Botanical Garden and
in the United States National Herbarium shows that
Ponera mapiriensis is referable to this species.

Guatemala, Honduras, the West Indies, Bolivia, Co-
lombia, Venezuela, British Guiana and Brazil.

Scaphyglottis stellata *Loddiges ex Lindley* in Bot.
Reg. 25 (1839) Misc. p. 44.

Ponera stellata Reichenbach filius in Walpers Ann. 6
(1862) 454.

British Guiana and Brazil.

Scaphyglottis striolata (*Reichb.f.*) *Correll comb.*
nov.

Ponera striolata Reichenbach filius in Linnaea 41
(1876) 39.

Reichenbach described the stem of *P. striolata* as "... caulibus clavato fusiformibus diphyllis, . . .," characters which are attributed to the genus *Scaphyglottis* but lacking in the genus *Ponera*. Later (l.c., p. 85) he stated that *Ponera Felskyi*, which is decidedly a *Scaphyglottis*, was closely related to *P. striolata*. The flowers of *S. striolata* are described as white with violet stripes. The native habitat of this species was not given.

Scaphyglottis violacea Lindley in Bot. Reg. 22 (1836) t. 1901.

Cladobium violaceum Lindley Introd. Nat. Syst. Bot. ed. 2 (1836) 446.

Scaphyglottis rosea Hooker Icon. Pl. 4 (1841) t. 313.

Ponera violacea Reichenbach filius in Bonpl. 2 (1854) 22.

Ponera rosea Reichenbach filius in Bonpl. 2 (1854) 22. Venezuela, British Guiana and Brazil.

DOUBTFUL SPECIES

Ponera pellita Reichenbach filius in Gard. Chron. n.s., 14 (1880) 8.

Reichenbach, in describing this species, wrote: "A highly curious botanical plant. It has on the whole the shape of an *Arundina*, as Mr. B. S. Williams well observes. The shoots may be compared to Palm leaves. They have brown sheaths, which, when decayed, fall off, leaving nothing but a dark brown ring at the base under the naked green joint of the stem, shining like bamboo. The leaves are from 5 inches long by $\frac{1}{2}$ - $\frac{1}{4}$ inch wide, linear, bidentate. The small flowers, equal to those of *Ponera striata*, are terminal—perhaps also sometimes lateral, as in the just-mentioned species. They are much like those of a small *Maxillaria*. It is covered outside on the sepals and ovary with stiff hairs, just as in some *Eria* of the *Trichotosia*

section, a most remarkable thing, the first instance in the genus. Inside they are greenish. The petals are broader, short apiculate, yellowish, with purple longitudinal lines. Lip probably whitish or yellowish, with dark purple radiating streaks, quadrilobed, with distinct stalks. Column trigonous, three-toothed at the apex, most probably whitish; an arborescent yellow blotch in front over the base. I confess that I did not see the anther, and that the curious flower had suffered from heat when it came, so that some of the indications about colour are rather undecided. Thus I felt rather doubtful. Mr. B. S. Williams was, however, so very kind as to send me the whole plant; and seeing all the details of roots and stems and leaves so much like those of *Ponera striata*, I have not the least hesitation to declare the curious plant a new *Ponera*."

Reichenbach did not give the native country of this horticultural plant.

It is quite possible that Reichenbach had in hand a plant of *Eria* when he described this species. The plant was grown by Mr. Williams who apparently did not know where it was originally collected. Although the flowers of some species of *Ponera* and *Eria* superficially resemble one another, we do not know of any species of *Ponera* whose flowers have sepals and ovary covered with stiff hairs or whose lip is distinctly 4-lobed. It is also true that some of the species of *Ponera* are vegetatively similar to some of the species of *Eria* in the *Trichotosia* section. It is regrettable that Reichenbach did not see the anther, a critical character, because *Eria* has eight pollinia while *Ponera* has only four.

Ponera pleurostachys Linden & Reichenbach filius
in Bonpl. 2 (1854) 282.

Without the type or authentic material of this species,

it has been impossible to ascertain its true status. It is apparently not referable to the genus *Ponera*. The column was described as being broadly winged, a character not attributed to this genus. It was also implied that the plant was much branched, and the peduncles were described as being clothed with acute white sheaths. The lip was described as flabellate, rounded and bilobed at the apex with an apicule in the sinus. Except for the apicule, the lip is apparently similar in outline to that of *P. glomerata*. The specimen was collected in Colombia.

Ponera inconspicua *Loddiges ex Baxter* in Loudon Hort. Brit. ed. 3 (1839) 616, supplement, *nomen nudum*.
Attributed to Guatemala.

The writer is indebted to Charles Schweinfurth for his helpful coöperation during the preparation of this paper, and to Gordon W. Dillon for the excellent illustrations.

TWO NEW AMERICAN ORCHIDS

BY

DONOVAN S. CORRELL

I. A NEW CORALLORRHIZA FROM MEXICO

The genus *Corallorrhiza* comprises a small group of saprophytic plants which attain their greatest development in the United States. Some of the species are widely distributed. For instance, *C. odontorrhiza* (Willd.) Nutt. (to which this new species is most closely allied) is found from southern Maine, through the eastern and south-central United States, south to Honduras in Central America.

***Corallorrhiza Williamsii* Correll sp. nov.**

Herbae simplices, graciles, nudaе, saprophyticae. Caulis erectus, basi bulboso-incrassatus, vaginis arcuatis adpressis obtectus. Inflorescentia racemosa, laxa, pauciflora. Bractae minutae. Flores parvi. Sepala lineari-oblonga, subobtusata vel acuta; sepala lateralalia leviter obliqua. Petala lineari-elliptica, obtusata, leviter obliqua, crenulata. Labelum obovato-suborbiculare, apice truncatum vel rotundatum, ecallosum, trinervium, marginibus lateralibus subintegris vel erosis. Columna generis. Capsula ovoidea.

Slender leafless saprophytic herbs, 15–30 cm. tall. Stem erect, bulbous-thickened at the base, yellowish brown, concealed by closely appressed sheaths. Inflorescence a lax few-flowered raceme, up to 7.5 cm. long. Floral bracts minute, less than 1 mm. long. Flowers small, on filiform pedicels which are about 3.5 mm. long. Sepals and petals purplish. Sepals linear-oblong, subobtusate to acute, 4.5–6 mm. long, 0.8–1 mm. wide; lateral sepals slightly oblique. Petals with a slender claw, linear-elliptic, obtusate, slightly oblique, the margins often crenulate, 4–5.5 mm. long, 1–1.2 mm. wide. Lip white, marked with purple, with a slender claw, obovate-suborbicular, trun-

cate to broadly rounded at the apex, ecallose, 3-nerved, the lateral margins nearly entire to erose, 4.5–6 mm. long, 2.8–3.8 mm. wide. Column slender, compressed, 3–4 mm. long. Capsule ovoid, about 7 mm. long.

This species differs from *C. odontorhiza*, which it superficially resembles, in the larger, broadly obovate, ecallose lip and in the decidedly longer and narrower sepals and petals. So far as we know, this is the only species of *Corallorrhiza* whose flowers possess an ecallose lip.

This species is named in honor of Dr. L. O. Williams, an assiduous student of the orchids of Mexico.

MEXICO: Morelos, barrancas N. W. of Cuernavaca, under trees, about 1800 m. alt., March 19, 1937, *Otto Nagel & Juan G. 6655* (TYPE in Herb. Ames No. 52598); Morelos, mts. above, W. of Cuernavaca, in barranca under trees, 1800 m. alt., lip with purple stains, rest purple, March 4, 1937, *Otto Nagel & Juan G. 6608* (Herb. Ames); terrestrial near Tepeyte, mountain N. W. of Cuernavaca, 2200–2600 m. alt., May 15, 1938, *L. O. Williams 3833* (in part) (Herb. Ames).

II. A NEW VARIETY OF *HABENARIA BLEPHARIGLOTTIS* FROM THE CUMBERLAND PLATEAU

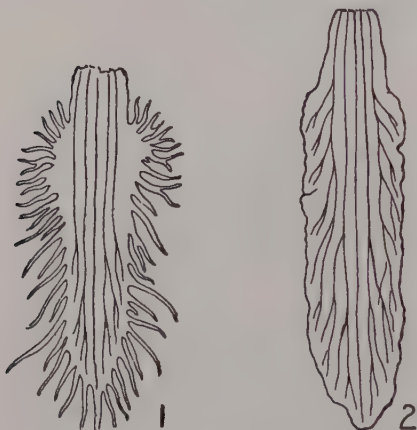
In the course of a recent study of the Orchidaceae of the southeastern states, several specimens of *Habenaria blephariglottis* (Willd.) Hook. were observed which had flowers whose lip was entire or nearly so rather than long- or short-fringed (a characteristic of the species). At that time (Bot. Mus. Leaflet Harvard Univ. 8 (1940) 89) these plants were referred to *H. blephariglottis* var. *holopetala* (Lindl.) A. Gray. It now seems best to consider *H. blephariglottis* and var. *holopetala* as identical, and to describe as a new variety of *H. blephariglottis* the plants with flowers possessing an entire lip.

***Habenaria blephariglottis* (Willd.) Hook. var. *integrilabia* Correll var. nov.**

Herba a speciei typo labello plusminusve integro solum differt.

Plant differs from the type of the species only in the entire or nearly entire lip.

All of the material from Kentucky and Tennessee which has been examined has flowers with an entire lip. This variety would seem to be fairly common locally on the Cumberland Plateau, with two outlying stations in the Smoky Mountains in North Carolina and several scattered stations on the higher Piedmont Plateau, and on the Coastal Plain of Alabama and Mississippi.



1. *Habenaria blephariglottis*, lip, taken from a typical plant from North Carolina, three times natural size.

2. *Habenaria blephariglottis* var. *integerrima*, lip, three times natural size.

Drawn February 1941 by G.W. DILLON

An interesting letter regarding a collection of this variety in Tennessee was received from Dr. H. K. Svenson dated September 15, 1938. It is, in part, as follows: "These [plants] were collected on the Cumberland Plateau near Beersheba Springs. I saw approximately two hundred specimens in grassy swamps, accompanied by *H. ciliaris* and *H. cristata*. This is undoubtedly the plant

mentioned in Ames, *Orchidaceae*, IV, 171, 1910—"Tennessee (?) Cumberland Mts., 1888, Mrs. Bennett (8) (a form with entire labellum)." It appears to be a large-flowered *H. blephariglottis*, with large petals and with a labellum which is consistently entire or practically so. It occurred in two swamps about five miles apart and is known from other places in the vicinity. Like the other



Map showing the distribution of *Habenaria blephariglottis*, represented by dots and *H. blephariglottis* var. *integrilabia*, represented by crosses.

species of *Habenaria* it is known locally as 'Monkey-face'."

In a recent letter Dr. McFarland wrote as follows concerning the type station of this variety: "There are literally 100's of these plants in this sphagnum bog. ..."

The map shows the distribution of the typical form of *H. blephariglottis* and of var. *integrilabia*. Plants from the southeastern states, particularly along the Gulf Coast, commonly have open racemes of large, long-spurred flowers whose lip is long-fringed, whereas plants from Newfoundland and eastern Canada commonly have dense racemes of small, short-spurred flowers whose lip is short-fringed. Conditions intermediate between these extremes occur in the northeastern and eastern United States. The southern plants have been segregated by some authors as *H. conspicua* Nash or *H. blephariglottis* var. *conspicua* (Nash) Ames, based mainly on the length of the spur. This character, however, depends too much on habitat conditions to be of taxonomic value. It seems best to regard as *H. blephariglottis* all of the white-flowered plants whose flowers have a fringed lip, and to segregate as a geographical variety those plants whose flowers possess a lip which is entire or nearly so.

NORTH CAROLINA: Cherokee County, in a bog in the southwest corner of the county, August 2, 1935, *D. S. Correll 3621* (Herb. Duke Univ.); Henderson County, Hendersonville, 1892-1900, *Margaret C. Campbell* (Herb. Univ. North Carolina).

KENTUCKY: boggy sphagnum ravine three miles north of Whitley City, McCreary County, August 27, 1940, *F. T. McFarland & H. J. Rogers 97* (TYPE in Herb. Ames No. 59555; ISO-TYPES distributed by the University of Kentucky in their First Century of plants); McCreary County, bog along stream about 3 miles south of Pine Knot, soil mediacid, September 11, 1927, *E. T. Wherry & F. W. Pennell* (Herb. Ames); McCreary County, sphagnum bog, 2.3 miles north of Whitley City, on U. S. Route 27, August 2, 1939, *H. J. Rogers 120* (Herb. Ames, Herb. Univ. Kentucky).

TENNESSEE: Fentress County, Mayland, August 16, 1934, *J. B. Porter 3092* (Herb. Univ. Tennessee); Franklin County, Sewanee, 1880,

E.K.Smith (Herb. Univ. Minnesota); Grundy County, Mont Eagle, August 16, 1930, *Mrs. A. G. Richards & Mrs. R. R. Maguire* (Herb. Cornell Univ.); Grundy County, near Beersheba Springs, grassy swamps, 1900 ft. alt., August 12, 1938, *H. K. Svenson 8580* (Herb. Ames, Herb. Duke Univ., Herb. Brooklyn Bot. Gard.); Hamilton County, W. Ridges, Chattanooga, August 1923, *M. S. Colby* (Herb. Univ. Chattanooga).

ALABAMA: Butler County, Greenville, swamps, August 11, 1900, *Biltmore Herb. 691d* (Herb. N.Y. Bot. Gard.); Culman County, Long Island, marshy ground on Sand Mt., August 1920, *V. Peterson* (Herb. Missouri Bot. Gard.); Tuscaloosa County, Tuscaloosa, June, *E.A.Smith 1489* (Herb. Mohr); Winston County, 1866, *T.M.Peters* (Herb. Brown Univ.).

MISSISSIPPI: Glendale [possibly Glenville, Panola County] 1863, *J.T.Stewart* (Herb. Field Museum).

EXPLANATION OF THE ILLUSTRATIONS

PLATE I. *PONERA GLOMERATA* Correll. 1, terminal portion of plant, one half natural size. 2, defoliated section of stem showing inflorescences, one half natural size. 3, flower, from front, partly spread open, two and one half times natural size. 4, dorsal sepal, two and one half times natural size.

PONERA STRIATA Lindl. 5, defoliated section of stem showing inflorescences, one half natural size. 6, flower, side view, two and one half times natural size. 7, flower, from front, partly spread open, two and one half times natural size.

PLATE II. *PONERA LONGIPETALA* Correll. 1, section of plant, one half natural size. 2, flower, from front, partly spread open, one and one half times natural size. 3, flower, side view, one and one half times natural size.

PONERA SUBQUADRILABIA Correll. 4, defoliated section of stem showing inflorescences, one half natural size. 5, flower, spread out, twice natural size.

PONERA JUNCIFOLIA Lindl. 6, plant, one half natural size. 7, flower, subtended by bracts, twice natural size. 8, lip, spread out, five times natural size.

PLATE III. *CORALLORRHIZA WILLIAMSII* Correll. 1, plant, natural size. 2, flower, from front, spread open, five times natural size. 3, column and lip, with sepals and petals removed, side view, five times natural size.

Plates drawn 1941 by G.W. DILLON

PLATE I

PONERA *glomerata* Correll



P. striata Lindl.

GORDON
DILLON

PLATE II

PONERA longipetala
Correll



P. subquadrilabia
Correll



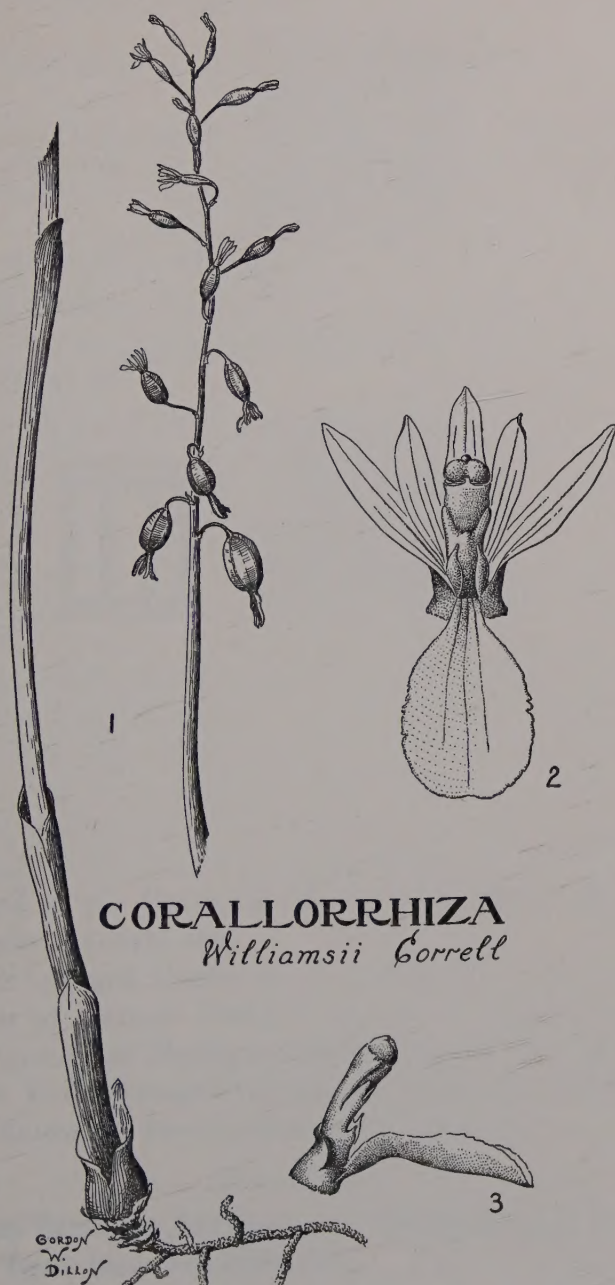
P. juncifolia Lindl.

GORDON
W.
DILLON

THE GARDEN OF EDEN



PLATE III



CORALLORRHIZA
Williamsii Gorrell

